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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,349	01/11/2002	Hideaki Yamamura	52433/674	6400
26646	7590	11/18/2003		
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			EXAMINER MCHENRY, KEVIN L	
			ART UNIT 1725	PAPER NUMBER

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/031,349

Applicant(s)

YAMAMURA ET AL.

Examiner

Kevin L McHenry

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 17-24 and 31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13, 17-19 and 21-24 is/are allowed.
- 6) ☒ Claim(s) 20 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 25 July 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 20 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09-103849 in view of Tanaka et al. (U.S.P. 4,887,662).

JP 09-103849 teaches a cooling drum for continuously casting metal strip with dimples having a depth of 30-150 μm are formed adjacent to one another on the plated peripheral surface of the cooling drum. The thermal conductivity of the base material of the drum is 100 W/m·K and a nickel layer 10-500 μm thick is formed over the drum. A film of cobalt 10-500 μm thick is formed on the peripheral surface of the drum over the nickel layer (see JP 09-103849; particularly abstract and Figures).

JP 09-103849 does not teach that the dimples have a diameter of 0.5 to 3 mm in circle equivalent or that the dimples have any spacing or pitch.

Tanaka et al. teach a cooling drum for continuously casting metal strip with dimples that have a diameter of 0.1-1.2 mm and a spacing according to a relationship with the diameter of the dimples. This spacing can include values of 100-500 μm .

Tanaka et al. teach that dimples with this range of diameters and spacing are necessary to restrict the growth mode of the solidified shell on the drum to provide a thin strip free from small scale cracking (see U.S.P. 4,887,662; particularly Figure 9; column 2, lines 27-36; column 4, lines 1-8; column 7, lines 25-68).

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It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the drum of JP 09-103849 by the teachings of Tanaka et al. One would have been motivated to do so in order to use dimples with a diameter and spacing that would restrict the growth mode of the solidified shell on the drum to provide a thin strip free from small scale cracking. The examiner notes that the dimples taught above read upon the fine holes cited in claim 31 and that claim 31 does not cite locations for the fine holes.

Allowable Subject Matter

3. Claims 1-13, 17-19, and 21-24 allowed.

Response to Amendment

4. Upon carefully reviewing applicant's amendment filed 25 July 2003, the examiner acknowledges the amendments to the specification, the cancellation of claims 34, 38 and 39, and the amendments to claim 31. The former drawing objection, objection to the specification, and restriction requirement are withdrawn in view of applicant's amendments.

Response to Arguments

5. Applicant's arguments filed 25 July 2003 have been fully considered but they are not persuasive.

The applicant argues that the references noted above in the rejection do not teach

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that the dimples are in contact or adjacent to one another. The examiner notes that claim 20 cites that the dimples are adjacent to each other at their rims while claim 31 cites that the dimples contact one another or are adjacent to each other. "Adjacent" is a broad term with varying definitions of how close objects have to be in order to be adjacent to one another. In considering the broadest scope of the claims, the references noted above do teach dimples that are adjacent to one another or are adjacent to each other at their rims.

The applicant argues that the references noted above do not teach the film that is more wettable with scum than nickel, as cited in claim 20. However, the references do teach a casting drum with a coating of cobalt. Cobalt oxidizes more readily than nickel. One of ordinary skill in the art understands that oxides are more compatible with scum and oxides than pure metals are. Therefore, one of ordinary skill in the art would understand that the cobalt coating would form a film that is more wettable with scum than nickel. Further, one of ordinary skill in the art would recognize that a film of oxide, slag, and/or scum would form on the casting drum during its operation. Such a build-up during use provides a film that is more wettable with scum than nickel.

The examiner further note that all of the cooling drum and dimple features cited by the applicant are taught by the references noted in the rejection above. Tanaka et al. also provide motivation for the combination by teaching that its dimples restrict the growth mode of the solidified shell on the drum to provide a thin strip free from small scale cracking.

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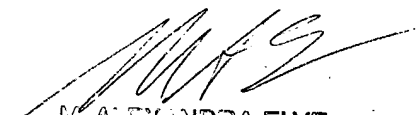
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (703) 305-9626. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (703) 308-3318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1234.



Kevin McHenry



M. ALEXANDRA ELVE
PRIMARY EXAMINER